CALIFORNIA BIRTH DEFECTS MONITORING PROGRAM

1917 Fifth Street
Berkeley, CA 94710-1916

510-549-4155
510-549-4175 FAX
www.cbdmp.org

Community Birth Defects Assessment on the Sunshine Canyon Landfill Area

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Report prepared by: John A. Harris, M.D., M.P.H. John A Harris MD
Chief, California Birth Defects Monitoring Program
California Department of Health Services
1917 Fifth Street
Berkeley, California
(510) 549-4155
www.cbdmp.org

Background: At the request of the Los Angeles County, Department of Health Services and the California Environmental Protection Agency's Office of Environmental Health Hazard Assessment, the California Birth Defects Monitoring Program (CBDMP) compared rates of specific birth defects in zip code areas close to Sunshine Canyon Landfill with rates in all of Los Angeles County. CBDMP is recognized internationally for the quality of its birth defects surveillance and research. In order to collect data on birth defects, CBDMP uses the "gold standard" for data collection: that is CBDMP staff visit 250 hospitals and genetic centers in California to identify children with structural congenital anomalies diagnosed during the first year of life.

Methodological Considerations: Epidemiological investigations are relatively conclusive when large, population-based samples are involved. Conversely, investigations like this involving local area analysis are limited by small sample sizes. The California Birth Defects Monitoring Program used all available data, but rate estimates in the zip codes under question still had wide confidence intervals. The confidence interval indicates that there is a 95% probability that the actual rate falls somewhere between the lower and the upper limit. In calculating rates for zip codes around the landfill, wide confidence intervals mean that the rate estimates are very imprecise due to the small sample sizes of pregnant women and small numbers of children born with specific birth defects.

Results: Table 1 below shows no statistically significant elevated rates in the zip code 91344 closest to the landfill compared to Los Angeles County as a whole. In other words the confidence intervals around the rate estimates for the congenital heart defects, Transposition of the Great Vessels and Tetralogy of Fallot, overlapped with the confidence intervals around the rate estimates for Los Angles County. Similarly in the other zip codes 91326 and 91342, rates were not statistically significantly higher. Also, combining data (data not shown) among all the zip codes for each of the birth defects conditions in Table 1 reveals no significant difference in rates in the combined areas close to the Sunshine Canyon landfill compared to all of Los Angeles County.

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Table 1: Birth Defects Rates with 95% confidence intervals LA County, zip code 91344 and zip codes 91326 and 91342, years 1990-2001. (Rates per 10,000 live and still births)

Condition	LA county	Zipcode:91344	Zipcode: 91326	Zipcode: 91342
Neural tube defects	5.61 (5.29-5.94)	3.01 (0.37-8.40)	6.86 (0.83-19.09)	7.21 (3.84-11.62)
Transposition of Great Vessels	2.25 (2.05-2.46)	4.52 (0.93-10.89)	0	2.22 (0.60-4.86)
Tetralogy of Fallot	3.44 (3.18-3.70)	4.52 (0.93-10.89)	3.43 (0.09-12.64)	3.33 (1.22-6.47)
Cleft lip with or without cleft palate	14.68 (14.15-15.21)	9.04 (3.32-17.58)	24.00 (9.65-44.73)	11.09 (6.78-16.45)
Down Syndrome	13.27 (12.77-13.77)	7.54 (2.45-15.43)	6.86 (0.83-19.09)	14.97 (9.87-21.12)

Discussion: Since all available data from 12 years were combined for this analysis, it is reassuring to note that there is no difference in birth defect rates among residents living in any of the zip codes close to the Sunshine Canyon Landfill compared to Los Angeles County as a whole. Furthermore, even if rates were high in the above zip codes, that would not necessary implicate exposure to the landfill. On the other hand, because of the small sample sizes in the zip codes under question and other methodological considerations, this investigation can not rule out that exposures to the Sunshine Canyon Landfill are associated with a small risk of developing birth defects among some people living nearby.